WHAT IS CLAIMED IS:

1. A reduction casting method, comprising the steps of:

pouring a molten metal into a cavity of a molding die;

reducing an oxide film formed on a surface of the molten metal by allowing the molten metal and a reducing compound to be contacted with each other in the cavity of the molding die; and

solidifying the molten metal in the cavity,

wherein, in the pouring step, the molten metal is poured into the cavity while it is allowed to be in a turbulent flow in the cavity.

2. The reduction casting method as set forth in claim 1, wherein a molten aluminum or a molten alloy thereof is used as the molten metal and a magnesium-nitrogen compound, which is obtained by introducing a magnesium gas and a nitrogen gas into the cavity and allowing the magnesium gas and the nitrogen gas to be reacted with each other therein, is used as the reducing compound.

3. A reduction casting method, comprising the steps of:

preparing a molding die including a cavity and a runner arranged in an upstream side of the cavity, the runner having a smaller flow passage diameter than that of a feeder head portion; and

pouring a molten metal into the cavity of the molding die;

reducing an oxide film formed on a surface of the molten metal by allowing the molten metal and a reducing compound to be contacted with each other in the cavity of the molding die; and

solidifying the molten metal in the cavity,

wherein, in the pouring step, a flow rate of the molten metal to be poured into the cavity is adjusted by adjusting the flow passage diameter of the runner.

4. The reduction casting method as set forth in claim 3, wherein a molten aluminum or a molten alloy thereof is used as the molten metal and a magnesium-nitrogen compound, which is obtained by introducing a magnesium gas and a nitrogen gas into the cavity and allowing the magnesium gas and the nitrogen gas to be reacted with each other therein, is used as the reducing compound.

5. A reduction casting apparatus for performing a casting while an oxide film formed on a surface of the molten metal is reduced by allowing the molten metal and a reducing compound to be contacted with each other, comprising:

a molding die having a cavity for receiving the molten metal, and a feeder head portion and a runner which are arranged in an upstream side of the cavity for pouring the molten metal into the cavity, the runner having a smaller flow passage

diameter than that of the feeder head portion.

6. The reduction casting apparatus as set forth in claim 5, wherein the feeder head portion is arranged just upstream of the cavity, and wherein the runner is connected with the feeder head portion.

7. The reduction casting apparatus as set forth in claim 5, wherein a molten metal reservoir for storing the molten metal is arranged at a sprue which is arranged in an upstream side of the runner, and wherein an opening/closing member for opening/closing a communication between the molten metal reservoir and the runner is arranged therebetween.

8. The reduction casting apparatus as set forth in claim 7, wherein the molding die includes a metallic mold portion defining the cavity and the feeder head portion, and a ceramic adaptor defining the runner and the sprue.

9. The reduction casting apparatus as set forth in claim 5, wherein a surface of an inner wall of the runner is subjected to a heat insulating treatment or formed by a heat insulating material selected from the group consisting of: ceramic, an alumina board and other heat insulating materials.

10. A molding die for use in an aluminum reduction casting method, in which a molten metal of aluminum or an alloy

thereof is poured into a cavity and casting is performed while an oxide film formed on a surface of the molten metal is reduced by allowing a magnesium-nitrogen compound and the molten metal to be contacted with each other in the cavity, the magnesium-nitrogen compound being generated by allowing a magnesium gas and a nitrogen gas to be reacted with each other,

wherein a first runner having a smaller flow passage diameter than that of a feeder head portion is arranged in an upstream side of the cavity.

11. The molding die as set forth in claim 10, wherein a second runner for pouring the molten metal into the cavity is directly connected to the cavity in the upstream side of the cavity.